Health and Safety Plan
for
McDonnell Douglas RFI
Hazelwood, Missouri Facility

Volume III, Appendix B

Prepared for:
McDonnell Douglas Corporation
(a wholly owned subsidiary of The Boeing Company)
St. Louis, Missouri

Prepared by:
QST Environmental Inc.
(formerly Environmental Science & Engineering, Inc.)
St. Louis, Missouri

November 25, 1997

QST Project No. 5197-042-0100

QST ENVIRONMENTAL INC.

HASP APPROVAL

Scheduled Start-up Date:	January, 1998	Scheduled Start-up Time:	8:00 am
Project:	McDonnell Douglas RFI	Site:	McDonnell Douglas
Project Number:	5197042	Site Location:	Hazelwood, MO Facility

We have reviewed the attached HASP, including the Project Information Sheet, for the above referenced site. We recognize that when this form is completed, the attached HASP is approved for the field activities on the above referenced site. Changes to this HASP shall be documented in writing and approved.

Scott George — Name and Signature of HASP Author — 11/25/97 — Date

Jana Smith/OFM — Name and Signature of HASP Reviewer — 11/25/97 — Date

Douglas F. Marian — Project Manager Signature — 11/25/97 — Date

Scott George — Field Implementation Manager Signature — 11/25/97 — Date

Scott George — Site Health & Safety Officer Signature — 11/25/97 — Date

QST ENVIRONMENTAL INC.

HASP ACKNOWLEDGEMENT

Project:	McDonnell Douglas RFI	Site:	McDonnell Douglas
Project Number:	5197042	Site Location:	Hazelwood, MO Facility

I acknowledge that I understand the requirements of this HASP, and agree to abide by the procedures and limitations specified herein. I also acknowledge that I have been given an opportunity to have my questions regarding the HASP and its requirements answered prior to performing field activities. Health and safety training and medical surveillance requirements applicable to my field activities at this site are current and will not expire during on-site activities.

Signature	Employee Number	Date

I acknowledge that I have verified that the employees listed above have fulfilled the health and safety training requirements for this site. I have also verified that the above employees have fulfilled the medical surveillance requirements and any client requirements to participate in a substance abuse screening program for this site and do not have any medical restrictions that would prohibit them from working at this site.

Project Manager's Signature: _____ Date: _____

QST ENVIRONMENTAL INC.

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1.0 Introduction

1.1 Site Information

The McDonnell Douglas (MD) facility (Facility) is located in the northwest portion of St. Louis, St. Louis County, Missouri. MD manufactures combat aircraft, transport aircraft, space systems and missiles, and information systems. The primary product produced at the Facility is combat aircraft, including the F-15 Eagle, the F/A-18 Hornet, and the AV-6B Harrier. Other products produced at the Facility include the T45TS trainer, missile systems, and components for the C-17 transport plane.

Access to the Facility is strictly controlled. The Facility is surrounded by a chain-link fence and patrolled by a security force 24 hours a day, 365 days a year. Employees and visitors must pass through security gates at the main entrance to the Facility before entering any building. The security force employs approximately 225 persons, and an on-site fire department employs approximately 30 persons.

MD began operations in 1941. Currently, the Facility operates 24 hours a day, Monday through Friday. Activities performed in support of MD operations include chemical processing, metal cutting, metal forming and grinding, degreasing, painting, aircraft assembly, aircraft fueling, and aircraft flight testing.

MD is a large quantity generator of hazardous waste. MD generates approximately 48 different waste streams that the Facility considers to be hazardous waste. The largest quantities of waste generated consist of emulsified cutting oil, paint solids, solvent and paint waste, wastewater treatment sludge, acid waste, and caustic waste.

The Facility is surrounded by Lambert -St. Louis International Airport on the south, commercial and industrial facilities on the west and north, and residential areas on the east. Surface water from the Facility drains toward Coldwater Creek which flows along the Facility's eastern boundary.

1.2 Objective

The objective of this HASP is to provide a consistent methodology that addresses the various health and safety concerns during the RFI Phase I Field activities at the Facility. The field activities consist of soil sampling with a Geoprobe system.

1.3 Regulatory Requirements

OSHA standards 29 CFR 1910 and 1926 apply to work under this site-specific safety plan. Detailed OSHA requirements for hazardous waste operations are contained in 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response." Additional guidance for hazardous waste operations may be found in the EPA publication, "Standard Operating Safety Guides" (November 1984) and in the National Institute of

Occupational Safety and Health (NIOSH)/OSHA/U.S. Coast Guard (USCG)/EPA publication, "Occupational Safety and Health Guidance manual for Hazardous Waste Site Activities" (October 1985).

2.0 QST Health and Safety Personnel

The following section briefly describes the health and safety designations and general responsibilities that will be employed for the MD project. An organizational chart is included. Overall and final project health and safety is the responsibility of the Project Manager, whether handled by them personally or by designated individuals.

2.1 Site Health and Safety Officer (SHSO)

The QST Site Health and Safety Officer (QST SHSO) has the responsibility to implement this HASP. The QST SHSO will conduct safety inspections and investigate each accident, illness, injury, and incident resulting from field activities under this task. The QST SHSO will also conduct daily safety meetings, complete the daily safety meetings checklists (Appendix A), and conduct site-specific training for on-site personnel (Appendix B). As necessary, the QST SHSO will accompany any governmental agency personnel from the Missouri Department of Natural Resources (MDNR), Occupational Safety and Health Administration (OSHA), or other agency personnel visiting the Facility in response to health and safety issues. The QST SHSO, in consultation with the QST Local Health and Safety Representative (QST LHSR), is responsible for updating and modifying this HASP as study area or environmental conditions change.

The QST SHSO is vested with the authority to stop field operations (STOP WORK AUTHORITY) if he or she determines that an imminent health or safety hazard or other potentially dangerous situation exists. The QST SHSO may also recommend to the QST LHSR or QST Regional Health and Safety Coordinator (QST RHSC) that the Exclusion Zone authorization of individual site personnel be revoked for health and/or safety causes.

2.2 Local Health and Safety Representative (LHSR)

The QST Local Health and Safety Representative (LHSR) is the health and safety professional serving as the QST St. Louis office designee for this project. As such, the QST LHSR is responsible for 1) reviewing and approving of this site-specific HASP, and any significant changes made over time to the HASP; 2) resolving disputes involving health and safety issues; and 3) assuring implementation of this HASP by the QST SHSO. The QST LHSR also conducts safety inspection audits. The QST LHSR will notify the QST RHSC of any Stop Work Orders issued by the QST SHSO.

2.3 QST Regional Health and Safety Coordinator (RHSC)

The QST Regional Health and Safety Coordinator (RHSC) has final authority to resolve health and safety issues not resolved at or through the QST LHSR, and has overall responsibility for assuring that the policies and procedures of this HASP comply with QST Environmental Inc.'s (QST) corporate health and safety

program and 29 CFR 1910.120. The QST RHSC will be responsible for the pre-evaluation of subcontractor's health and safety programs.

2.4 QST Corporate Health and Safety Officer (CHSO)

The QST Corporate Health and Safety Officer (CHSO) shall be used as a resource for information and advice by the QST RHSC and LHSR, as needed. The QST CHSO will be made aware of scheduled field operations in which Level B Personal Protective Equipment (PPE) will be utilized.

2.5 QST Field Implementation Manager (FIM)

The QST Field Implementation Manager (FIM) will be responsible for assuring that all field personnel have completed QST's medical surveillance requirements and health and safety training required by 29 CFR 1910.120. The QST Task Manager will work in conjunction with the QST SHSO and QST LHSR in making decisions regarding health and safety of on-site personnel.

2.6 QST Field Team Members (FTM)

The QST Field Team Members (FTMs) will include on-site personnel, other than those mentioned above. Each QST FTM will have Exclusion Zone authorization.

3.0 Hazardous Substances/Constituents of Concern

Chemical hazards of constituents of concern during activities at MD include: tetrachloroethylene (PCE): 1,2-dichloroethene (1,2-DCE); acetone, xylenes, and polynuclear aromatic hydrocarbons (PAHs) including: anthracene, benzo(k)fluoranthene, benzo(g,h,i)anthracene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene. The potential inorganics of concern are: arsenic, cadmium, and selenium. A detailed summary of constituents of concern is provided in Table 3-1. Site chemical inventory is presented in Table 3-2. Material Safety Data Sheets (MSDS) for constituents of concern are included in Appendix C.

5.0 Hazard Mitigation and Control

5.1 General Safety Rules

Eating, drinking, chewing gum or tobacco, smoking, and applying lip balm or make-up is prohibited in any area designated as contaminated.

Contact with contaminated surfaces should be avoided. Whenever possible, Field Team Members should not walk through puddles, mud, or discolored surfaces; kneel on the ground; or lean, sit, or place themselves or equipment on drums, vehicles, or the ground.

Contact lenses will not be worn in any areas other than the support zone.

Smoking is prohibited within the fenced area of the Facility. Other sources of ignition are prohibited in the vicinity of heavy equipment and flammable or contaminated material, including flammable vapors.

Personnel must wash hands and face prior to eating and drinking. Field personnel must shower as soon as possible after leaving the site.

Horseplay is prohibited in all work areas.

Working while under the influence of intoxicants, narcotics, or controlled substances is prohibited.

Good housekeeping procedures shall be followed to reduce slips, trips, and falls.

Operations shall be restricted to daylight hours unless adequate lighting is provided (see Attachment F of QST's UCEP Program).

5.2 Electrical Hazards

Have buried electric lines located and marked by the local authority (e.g., DIGSAFE) before initiating all subsurface work.

For voltages 50 kV or less, maintain at least 10 feet of clearance from overhead power lines. For voltages exceeding 50 kV, the clearance shall be increased by 4 inches for every 10 kV over 50 kV. Contact the electric utility concerning blanketing of overhead power lines if these distances cannot be obtained.

Electrical equipment, including pumps, sampling equipment, and power tools will be inspected prior to use to ensure that they are in good repair and have no frayed or loose connections.

All electrical equipment used on-site will be properly grounded or bonded.

Ground Fault Circuit Interrupters (GFCI) will be used with electrical equipment on all outdoor and subsurface tasks.

If electrical equipment must be connected by splicing wires, use properly insulated connectors and wrap with electrical tape.

Do not perform work on electrical hook-ups and/or equipment when they are located in standing water or any wet location. When water is present, either drain/dry the area or move the equipment to a dry location.

Only properly trained personnel should make electrical connections. If necessary, a master electrician should be subcontracted or the Facility electrical maintenance technician should be contacted.

All electrical equipment will be shut off during fueling operations.

5.3 Temperature Hazards

5.3.1 Heat

When work is being performed under high temperatures and humidity, implement a heat stress monitoring program according to SOP 340. Monitoring should include heart rate and body temperature measurements.

Work/rest periods should be modified as necessary based on the results of the monitoring program.

Preventative measures should be taken to avert employee illness, including rest periods, work slowdowns, job rotation, and/or performing work during cooler hours of the day. Shade or air-conditioned shelter should be provided for employees during rest periods.

Potable, cool water will be provided for employees. Workers should be encouraged to drink 16 ounces of water prior to their shift, and drink at every rest break (or every 15 to 20 minutes).

The SHSO or FIM will discuss the signs and symptoms of heat related illnesses with workers and document on the Daily Safety Meeting Checklist.

5.3.2 Cold

In cold extremes, if feet or other body parts become wet they should be dried at the earliest possible time. If this occurs on a boat and the individual must be returned to shore, care should be taken during boat travel to avoid aggravating the problem with increased wind chill.

After going through the decontamination procedures, employees should proceed directly to a protected area.

At temperatures of 32°F, the effects of wind speed become pronounced. A tarp or other barrier should be used to reduce the effects of wind speed if possible. A protected area will be provided for employees for rest breaks.

Protective clothing shall be used, especially on the head, neck, and hands, to the extent possible to reduce chances of hypothermia and frostbite.

Avoid skin contact with metal objects. Tools and equipment with nonmetallic handles should be used when possible.

The SHSO or FIM will discuss the signs and symptoms of cold weather injuries with workers and document on the Daily Safety Meeting Checklist.

5.4 Drilling/Boring Hazards

A *warning device or signal person* shall be provided to protect employees from moving drilling/boring equipment. *For signal person:* Where hand signals are used, only one person shall be the designated signal person, and shall be located to see the load and be clearly visible to the operator.

Employees are not allowed under, on, or in a derrick being raised or lowered.

Employees shall obtain instructions from the drilling operator as to where to locate themselves to prevent accidents from hoists, augers, etc.

QST's Lockout/Tagout Program shall be followed during maintenance or repair activities.

All personnel shall be informed by the appropriate equipment operator of the location of the "kill switch" for each piece of equipment on-site.

Loose fitting clothing and long hair that is not adequately tied up are not allowed when working in the vicinity of the drilling/boring equipment.

QST personnel should not attempt to obtain samples from operating drilling equipment.

5.5 Heavy Equipment Hazards

A *warning device or signal person* shall be provided to protect employees from moving drilling/boring equipment. *For signal person:* Where hand signals are used, only one person shall be the designated signal person, and shall be located to see the load and be clearly visible to the operator.

Employees are not permitted underneath loads handled by lifting or digging equipment. Employees shall also stay clear of any vehicle being loaded or unloaded.

Seatbelts shall be worn if available, except for equipment designed for stand-up operation.

Equipment shall be shut down during refueling.

Loose fitting clothing and long hair that is not adequately tied up are not allowed when working in the vicinity of heavy equipment.

5.6 Vehicular Hazards

The local traffic control authority shall be contacted prior to interrupting the flow of public travel.

Employees exposed to public vehicular traffic shall wear warning vests marked with or made of reflective or high-visibility material.

Public traffic shall be protected from site hazards by placing traffic cones, barricades, construction fencing, etc. at a safe distance around the work site.

Seat belts shall be worn when driving or a passenger in a vehicle.

Always remember that when you are trailering a boat, once underway it is easy to lose a feel for the tow. Allow more room to stop and greater clear distance for overtaking and passing other vehicles.

Be alert for signs restricting trailers.

Continually check and/or monitor that the trailer features (i.e., wheel bearings, tie downs, lights) are in good shape and proper working condition during the trip.

A warning or signal shall be provided to protect employees from a moving truck and boat trailer. For signal person: where hand signals are used, only one person shall be the designated person, and shall be located to see the trailer and be clearly visible to the truck operator.

5.7 Fire/Explosion Hazards

Explosive Atmosphere -

10% LEL	Proceed with work
10 - 20% LEL	Monitor with extreme caution; no hot work permitted.
20% LEL	Evacuate work zone immediately

Keep all sources of ignition away from explosive atmosphere and flammable materials.

Use intrinsically safe instrumentation in any potentially explosive atmosphere.

All flammable liquids shall be kept in approved containers.

5.8 Chemical Hazards

5.8.1 Air Monitoring

5.8.1.1 Equipment Required

Air monitoring equipment to be used on-site includes: PID (11)

5.8.1.2 Frequency

Upon initial site entry, air monitoring shall be performed in accordance with the UCEP Program in order to properly characterize the site and obtain adequate information on hazardous air conditions.

Additional monitoring shall be conducted whenever work begins on a different portion of the site; when different contaminants are handled, encountered, or suspected to be encountered; when a different operation is initiated; in the event of a spill or leak; and whenever the SHSO or FIM determines that additional monitoring is warranted.

5.8.1.3 Air Monitoring Techniques

Air monitoring shall be conducted on the employee(s) who have the potential for the highest exposure to the contaminant(s). Monitoring shall be performed in such a way that personal exposures to the contaminants may be calculated. Airborne levels of contaminants shall be noted periodically in the field log book, and every reading shall be recorded on the appropriate Personal Exposure Monitoring Form (Appendix D). If only representative employees will be monitored, the names of other employees represented by the monitoring shall be noted in the field log book and on the Personal Exposure Monitoring Forms. Integrated, full-shift monitoring requiring laboratory analysis shall not be relied on as the sole means of exposure assessment for any work area or task where conditions may change rapidly.

5.8.1.4 Calibration

All air monitoring instruments shall be calibrated according to manufacturer's instructions and standard industrial hygiene practice (see SOP 140). Direct reading instruments shall be calibrated prior to and after (each day's) use, and at any time the operator of the instrument suspects instrument drift or malfunction. Air sampling pumps shall be calibrated prior to and after each use. Each calibration shall be recorded in the individual instrument log book, as well as on the appropriate Personal Monitoring Forms.

5.8.2 Levels of Protection

5.8.2.1 Level B

Positive pressure, full face-piece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA.

- Hooded, full-body chemical-resistant clothing (type: Saranac® or equivalent).
- Outer chemical resistant gloves (type: nitrile or equivalent).
- Inner chemical resistant gloves (type:rubber vinyl or equivalent).
- Chemical resistant outer boots and steel toe inner boots; or Chemical resistant, steel toe boots (type– rubber outer boot covers or rubber steel-toed boots).
- Optional items – hard hat, disposable boot covers, and disposable coveralls for over chemical resistant clothing, hearing protection.

5.8.2.2 Level C

- Full-face air purifying respirator (cartridge type: combination cartridge).
- Chemical resistant clothing (type: Tyvek®, Saranac®, or equivalent).
- Outer chemical resistant gloves (type: nitrile or equivalent).
- Inner chemical resistant gloves (type: rubber vinyl or equivalent).
- Chemical resistant outer boots and steel toe inner boots; or Chemical resistant, steel-toe boots (type – rubber outer boot covers or rubber steel-toe boots).
- Optional items – hard hat, disposable boot covers, and disposable coveralls for over chemical resistant clothing, hearing protection.

5.8.2.3 Modified Level C

- Chemical resistant clothing (type: Tyvek®, Saranac®, or equivalent).
- Outer chemical resistant gloves (type: nitrile or equivalent).
- Inner chemical resistant gloves (type: rubber vinyl or equivalent).
- Chemical resistant outer boots and steel-toe inner boots, or Chemical resistant, steel toe boots (type – rubber outer boot covers or rubber steel-toe boots).
- Optional items – hard hat, disposable boot covers, and disposable coveralls for over chemical resistant clothing, hearing protection.

5.8.2.4 Level D

- Coveralls or appropriate work clothing.
- Gloves.
- Steel-toe boots.
- Safety glasses with side shields.
- Splash goggles will be the minimum eye protection worn when handling concentrated acids or caustics.

- Optional items -- hard hat, chemical resistant over boots, escape full-face air purifying respirator, face shield, hearing protection.

5.8.2.5 Certification of PPE Hazard Assessment

I certify that the hazard assessment regarding personal protective equipment for QST's work at MD - St. Louis was completed on November 25, 1997 by Scott George in accordance with 29 CFR 1910.132 and QST's Personal Protective Equipment Program (Appendix E). The results of the hazard assessment are incorporated in the PPE requirements noted above.

Douglas F. Marian

Signature of Project Manager

5.8.3 Engineering Control

Measures shall be taken on-site to reduce airborne dust levels when visible airborne dust becomes present. Water or other appropriate dust suppressant materials shall be applied to work and traffic areas as appropriate to reduce the amount of dust generated.

5.9 Noise

Noise monitoring should be conducted on a periodic basis to determine the need for hearing protection. Alternatively, the use of hearing protection can be based on historical data for a similar project. Hearing protection, with the appropriate attenuation factor, will be worn by all employees in the area when noise levels meet or exceed 85 dB(A). The Field Implementation Manager shall strictly enforce the use of appropriate hearing protection when noise levels exceed 90 dB(A).

5.10 Lockout/Tagout

All hazardous sources of energy, including electrical, mechanical, pressure, thermal, stored energy, and hazardous chemicals or other agents, must be locked out in accordance with QST's Lockout/Tagout Program. Lockouts may only be performed by Authorized Employees who have successfully completed the training outlined in SOP 535.

Locks and tags shall be used whenever the equipment is capable of handling a lock. Tags alone are only permitted where the equipment was designed without the capability of being locked. Every energy source associated with the equipment must be locked/tagged out. Every individual working on the equipment shall apply his/her own lock. All lockout/tagout equipment must be approved by QST for use. The lockout/tagout procedures outlined in SOP 530 shall be followed.

5.11 Decontamination Procedures

5.11.1 Level B

Station 1:
Outer glove wash (tap water with Alconox®)
Station 2:
Outer boot and glove rinse (tap water)
Station 3:
Tape Removal
Station 4:
Outer boot and glove removal
Station 5:
Suit and inner boot wash (tap water with Alconox®)
Station 6:
Suit and inner boot rinse (tap water)
Station 7:
Inner boot removal
Station 8:
Suit and hard hat removal
Station 9:
SCBA Backpack Removal
Station 10:
Inner glove wash (tap water with Alconox®)
Station 11:
Inner glove rinse (tap water)
Station 12:
Face-piece removal
Station 13:
Inner glove removal
Station 14:
Inner clothing removal
Station 15:
Field hand/face wash or shower

All disposable items will be bagged for appropriate disposal.

5.11.2 Level C

Station 1:
Outer boot and glove wash (tap water with Alconox®)

Station 2:
Outer boot and glove rinse (tap water)
Station 3:
Outer boot and glove removal
Station 4:
Coverall removal
Station 5:
Respirator removal and wipe down
Station 6:
Inner glove removal and hand wash/rinse

All disposable items will be bagged for appropriate disposal.

5.11.3 Modified Level C

Station 1:
Outer boot and glove wash (tap water with Alconox®)
Station 2:
Outer boot and glove rinse (tap water)
Station 3:
Outer boot and glove removal
Station 4:
Coverall removal
Station 5:
Inner glove removal and hand wash/rinse

All disposable items will be bagged for appropriate disposal.

5.11.4 Level D

Station 1:
Boot and glove wash
Station 2:
Boot and glove rinse (tap water)
Station 3:
Boot and glove removal
Station 4:
Hand wash/rinse

All disposable items will be bagged for appropriate disposal.

5.12 Medical Surveillance Requirements

All site personnel shall be actively participating in QST's Medical Surveillance Program, including baseline and annual examinations at an EMR clinic and in accordance with 29 CFR 1910.120 and 29 CFR 1910.134. A copy of each employee's Medical Summary form will be retained on-site. At least one field team member will be trained and certified in CPR and First Aid.

For any exposure incidents while rendering first aid or CPR, the exposed individuals shall receive a medical evaluation and Hepatitis B vaccination in accordance with QST's Bloodborne Pathogen Program. The LHSR and EMR shall be notified **immediately** of any exposure incidents.

QST's OSHA 200 Log is kept on file at QST's St. Louis office.

5.13 Training Requirements

All workers will complete 40-hour training in accordance with SOP 200 prior to working on-site. This training shall be kept current via 8-hour refresher training in accordance with SOP 201.

SHSOs and FIMs shall also have successfully completed 8 hours of supervisor training in accordance with SOP 202.

At least one field team member shall be trained and certified in first aid and CPR. Personnel who have received this training must also receive the appropriate level of bloodborne pathogen training in accordance with SOP 610.

All workers shall have successfully completed respirator training in accordance with SOP 400 for the appropriate type(s) of respirator.

All workers shall have successfully completed personal protective equipment training in accordance with SOP 425 and QST's Personal Protective Equipment Program.

Prior to commencement of site activities and daily thereafter, site specific training will be provided in accordance with SOP 203 and will include an overview of HASP requirements. The Daily Safety Meeting Checklist included as part of this HASP will be used to document this training. Subcontractors will be required to read the HASP prior to commencement of field activities. The Project Manager will complete a subcontractor coordination checklist. A copy of the subcontractor coordination checklist is included in Appendix F.

Employees involved in any lockout and/or tagout procedure on-site shall have successfully completed training for Authorized Employees in accordance with SOP 535 Section 5.2. Employees working nearby or otherwise

affected by the lockout/tagout activities shall receive training for Affected Employees in accordance with SOP 535 Section 5.1.

All QST or subcontracted personnel must review MD's Vendor/Contractor Safety/Environmental Awareness Guide prior to entering the site. MD's Awareness guide must be followed when no corresponding QST procedure is available for the tasks or situation.

5.14 Site Control

5.14.1 Site Work Zones

Three work zones shall be established on-site as deemed appropriate and feasible by the FIM: Exclusion Zone, Contamination Reduction Zone, and Support Zone. Site work zone delineation will be based on the site activities and on the size and configuration of the site. Support zones shall be established upwind of the Exclusion Zone and field activities. Wind direction may be determined by visual observation or field instrumentation. Work zones shall be delineated using barrier tape or other effective means.

The Exclusion Zone will be the immediate area around field activities where contamination does or could occur. The Contamination Reduction Zone is the transition between the contaminated area and the clean area. The Contamination Reduction Zone should be designed to limit, as much as possible, the probability of the Support Zone becoming contaminated. The Support Zone is considered to be a "clean" area; all administrative and other support services should be performed in the Support Zone.

5.14.2 Buddy System

Site personnel must practice the buddy system of at least two people who maintain visual or verbal contact within an exclusion zone. Contact should be either constant or at some frequent interval during field work (frequency should depend on the nature of hazards present). The buddy may be an QST employee, subcontractor, or client representative as appropriate. For normal Level D activities, the buddy system will consist of the individual performing the work notifying on-site personnel of his/her presence at the Facility. On-site personnel include MD personnel, on-site subcontractors, or Facility guards.

5.14.3 Site Communications

Telephones are present at the guard buildings located at the plant entrances, at waste treatment, and various other buildings and construction support structures (construction trailers). Two-way radios are available from Environmental Engineering when needed.

6.0 Emergency Information

This section provides information that would be used under emergency conditions. Table 6-1 identifies site resources and locations. Figure 6-1 shows the route to the medical facility. Appropriate local resources such as nearest medical facility, police, and fire department are listed along with their respective addresses and phone numbers. QST emergency resources are also listed.

7.4.1 Spill Reporting Procedures

Any spill of a hazardous substance over 10 gallons must be immediately reported to MD's Project Manager. The MD Project Manager will conduct the necessary reporting requirements. Further discussion of spill reporting procedures is presented in the MD Vendor/Contractor Safety/Environmental Awareness Guide included in Appendix G.

7.5 Medical Emergency

If trained and willing, initiate first aid and get medical attention for the injured person(s) immediately. Have the injured person(s) transported to the nearest medical facility (see above) or dial 911 as necessary. As soon as possible, notify the injured person's supervisor, the MD Project Manager, and/or the QST Project Manager. Supervisors/PM's notify your LHSR and, in the event of a chemical or bloodborne pathogens exposure, EMR immediately. As soon as possible after the incident, an QST Report of Occupational Accident, Injury or Illness (Appendix H) must be submitted to the appropriate individual.

7.6 Emergency Decontamination Procedures

The level of decontamination in a medical emergency will be determined by the extent of the injury. For minor injuries, personnel must go through the proper decontamination sequence as stated in this HASP.

In life-threatening emergencies or when decontamination may aggravate the condition, decontamination procedures may be omitted. If decontamination cannot be performed, a FTM should accompany the injured worker to the medical facility, if possible, to provide information to medical response personnel regarding the contaminants and decontamination procedures. In lieu of decontamination, actions such as removal of the outer layer of protective clothing or wrapping the victim in plastic (during treatment) can be taken if they will not delay or interfere with the treatment of the injury. In the event the victim has been splashed with a corrosive material, the affected area should always be flushed with water (see below).

7.7 Chemical Exposure Emergency

EYE CONTACT:	Flush eyes with copious amounts of water for 15 minutes.
SKIN CONTACT:	Remove contaminated clothing. Flush skin with copious amounts of water for 15 minutes.
INHALATION:	Remove to fresh air.
INGESTION:	Consult Poison Control Center, MSDS or other appropriate medical resource (see above).

7.8 Severe Weather Procedure

Upon hearing a "TAKE COVER" announcement, or seeing a tornado, severe thunderstorm, or other severe weather, all personnel will immediately take cover. Personnel will report to the Environmental & Hazardous Materials Services (EHMS) after an "ALL CLEAR" notice is received to report any incidences that may have occurred.

Tables

Table 3-1. Identified/Suspected Site Constituents of Concern, McDonnell Douglas, St. Louis, Missouri

Constituent Name (Synonyms)	Appearance & Physical Form (Pure substance)	OSHA PEL/ ACGIH TLV	STEL	IDLH	Routes of Entry	Potential Health Effects (Acute & Chronic)	PID Ionization Potential
Acetone	Colorless liquid with fragrant mint-like odor	750 ppm (PEL)	1000 ppm	2500 ppm	Inhalation Ingestion Contact	Irrit eyes, nose, throat; head, dizz, CNS depress; derm	9.69
Arsenic (inorganic)	METAL-silver-grey or tin-white, brittle, odorless solid	0.01 mg/m^3 (TLV)	NE	5 mg/m^3	Inhalation Ingestion Contact	Ulceration of nasal septum, derm, GI disturbances, peri neur, resp irrit, hyperpig of skin (carc)	9.89
Benzo(k)Fluoranthene		NE	NE	ND	Inhalation Ingestion Contact	Experimental tumorigen, irritating fumes when heated	
Cadmium	METAL silver-white, blue-tinged, lustrous, odorless solid	0.005 mg/m^3	NE	9 mg/m^3	Inhalation Ingestion	Pulm edema, dysp, cough, chest tight, subs pain; head; chills, musc aches; naus, vomit, diarr, anos, emphy, prot, mild anemia [carc]	NA
1,2-Dichloroethene (1,2-Dichloroethylene)	Colorless liquid with a slightly acrid chloroform-like odor	200 ppm	NE	1000 ppm	Inhalation Ingestion Contact	Irrit eyes, resp sys, CNS depres	9.65
Selenium	Amorphous or crystalline, red to grey solid	0.2 mg/m^3	NE	1 mg/m^3	Inhalation Ingestion Contact	Irrit eyes, skin, nose, throat, vis dist; head; chills, fever, dysp, bron; metallic taste, garlic breath, GI dist; derm; eye, skin burns	NA

QST ENVIRONMENTAL INC.

Constituent Name (Synonyms)	Appearance & Physical Form (Pure substance)	OSHA PEL/ ACGIH TLV	STEL	IDLH	Routes of Entry	Potential Health Effects (Acute & Chronic)	PID Ionization Potential
Tetrachloroethylene (perchlorethylene, perk)	Colorless liquid with a mild chloroform-like odor	25 ppm	100 ppm	150 ppm	Inhalation Absorption Ingestion Contact	Irrit eyes, nose, throat, nau; flush face, neck; vert, dizz, inco; head, som; skin eryt; liver damage; [carc]	9.32
Xylenes (o-,m-,p-isomers)	Colorless liquid with an aromatic odor	100 ppm	150 ppm	900 ppm	Inhalation Absorption Ingestion Contact	Irrit eyes, skin, nose, throat; dizz, excitement, drow, inco, staggering gait, corn vacuolization, anor, nau, vomit, abdom pain, derm	8.44-8.56

Note:

STEL = Short Term Exposure Limit (STEL)

IDLH = Immediately Dangerous to Life and Health

OSHA = Occupational Safety and Health Administration

PEL = Permissible Exposure Limit

TLV = Threshold Limit Value

ppm = parts per million

ACGIH = American Conference of Governmental Industrial Hygienists

NIOSH = National Institute of Occupational Safety and Health

ND = Not Determined

NA = Not Applicable

NE - Not Established

mg/m^3 = milligrams per cubic meter

Ca/carc = Carcinogen

Abbreviations in table taken from the NIOSH *Pocket Guide to Chemical Hazards*

Table 3-2. Site Chemical Inventory, McDonnell Douglas, St. Louis, Missouri

Chemical Name (Match to MSDS)	Estimated Quantity On-site at Any Given Time	Location On-site
Acetone	1 liter	in vehicle
Hydrochloric Acid	minimal	in sample bottles
Nitric Acid	minimal	in sample bottles
A current MSDS must be present on site for each chemical listed above. All chemical containers must be labeled in accordance with SOP 150. Subcontractors must maintain their own chemical inventory.		

QST ENVIRONMENTAL INC.

Table 4-1. Task Hazard Evaluation, McDonnell Douglas, St. Louis, Missouri

TASK	HAZARDS				
Geoprobe Sampling		Temperature-Heat		Drilling/Boring	Heavy Equipment
		Vehicular			Fire/Explosion
		Chemical			
	Noise	Lockout/Tagout			

Table 4-2. Level of Protection by Task, McDonnell Douglas, St. Louis, Missouri

TASK (Describe)	Anticipated LOP		Upgrade LOP			
	LOP	Sustained Airborne Levels	LOP	Sustained Airborne Levels	LOP	Sustained Airborne Levels
Geoprobe Sampling	D	< 5 ppm above background	C	5 - 20 ppm above background		

QST ENVIRONMENTAL INC.

Table 6-1. Emergency Information

Local Resources (Address and Phone Numbers)	
Police: Hazelwood Police	- Dial 911
Fire: Hazelwood Fire Department	- Dial 911
Ambulance:	- Dial 911 for nearest available facility ( )
Medical Facility Name: Christian Hospital - Northwest	Main Hospital Information - 839-3800 Emergency Department - 953-6722
Route (also attach map showing route): Exit MD Facility and take Lindbergh north to Interstate Highway 270. Take Highway 270 east to Graham Road Exit highway 270 onto Graham Road north. Hospital will be on the left side of the street. Follow emergency entrance signs.	
FTM Who Drove Route: Scott George	Date:
Poison Control Center: (341) 772-5200	Waste Clean-up Contracts:
National Spill Response Center: (800) 424-8802	USCG: (800) 368-5647 MO State Water Patrol: (573) 751-3333

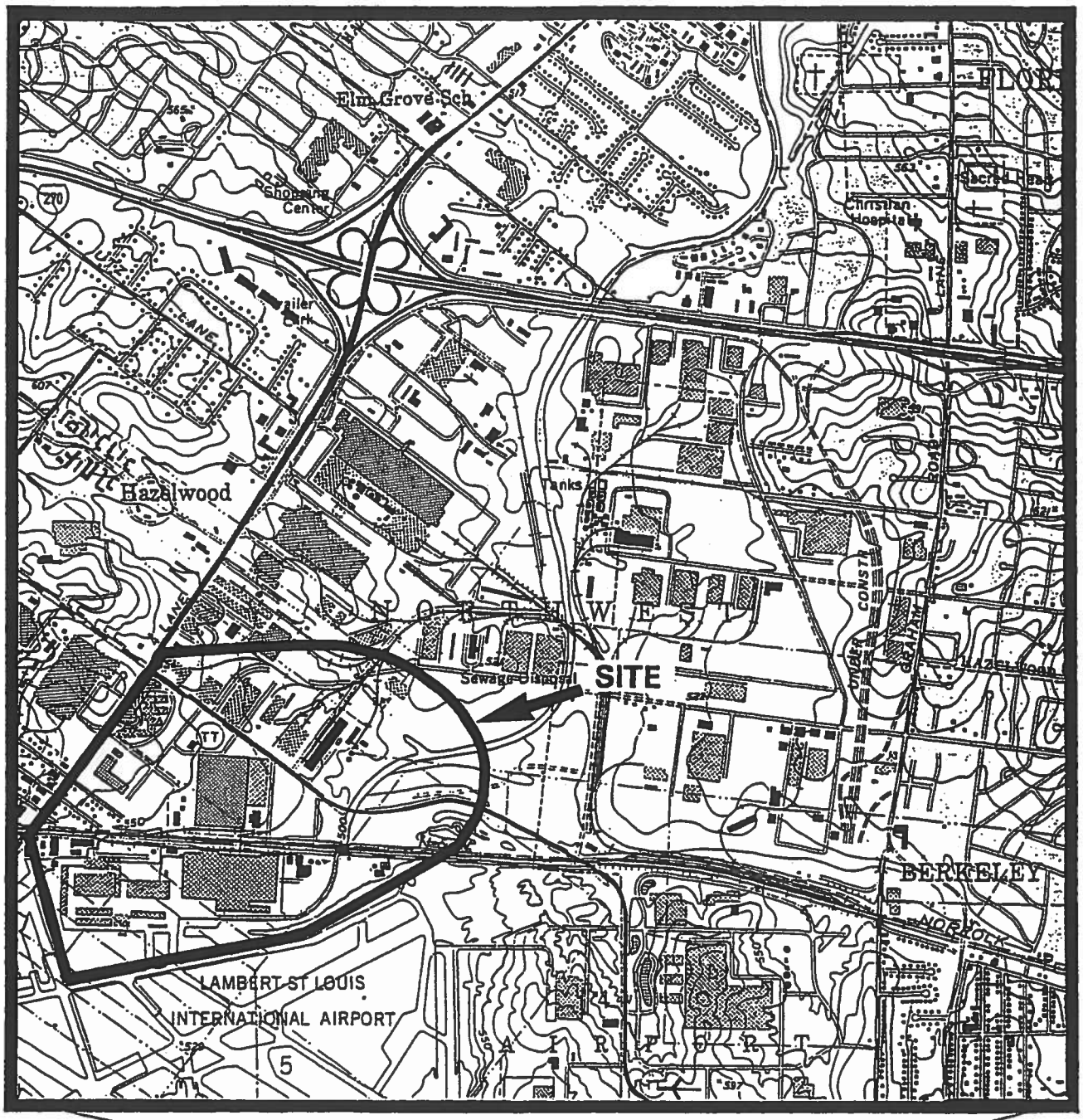
Site Resources		
	Equipment	Location On-site
First Aid	First aid kit and eyewash (15-minute flush minimum)	Vehicles
Fire Control	ABC 10 lb. fire extinguisher	Vehicles
Transportation	Company Vehicle or Ambulance Service (Dial 911)	NA
Communication	Telephone	Cellular/nearest at Facility
Spill Control		
Rescue		
Other		

QST Resources	
CHS: Phil Zerwer	Phone: (800) 737-1999 or (309) 693-5660
LHSR: Lana Smith	Phone: (314) 567-4600
CHSC: Lana Smith	Phone: (314) 567-4600
EMR: Team #1	Phone: (800) 229-3674
Other: (Office Manager) - Rick Folkemer (Client Contact) -	Phone: (314) 965-7814

Figures

Figures

SOURCE: U.S. GEOLOGICAL SURVEY, 7.5 MINUTE SURVEY (TOPOGRAPHIC)
FLORISSANT, MO. QUADRANGLE (1954), PHOTOREVISED 1982.



McDONNELL DOUGLAS

Figure 1-1
FACILITY SITE MAP

QST ENVIRONMENTAL INC.

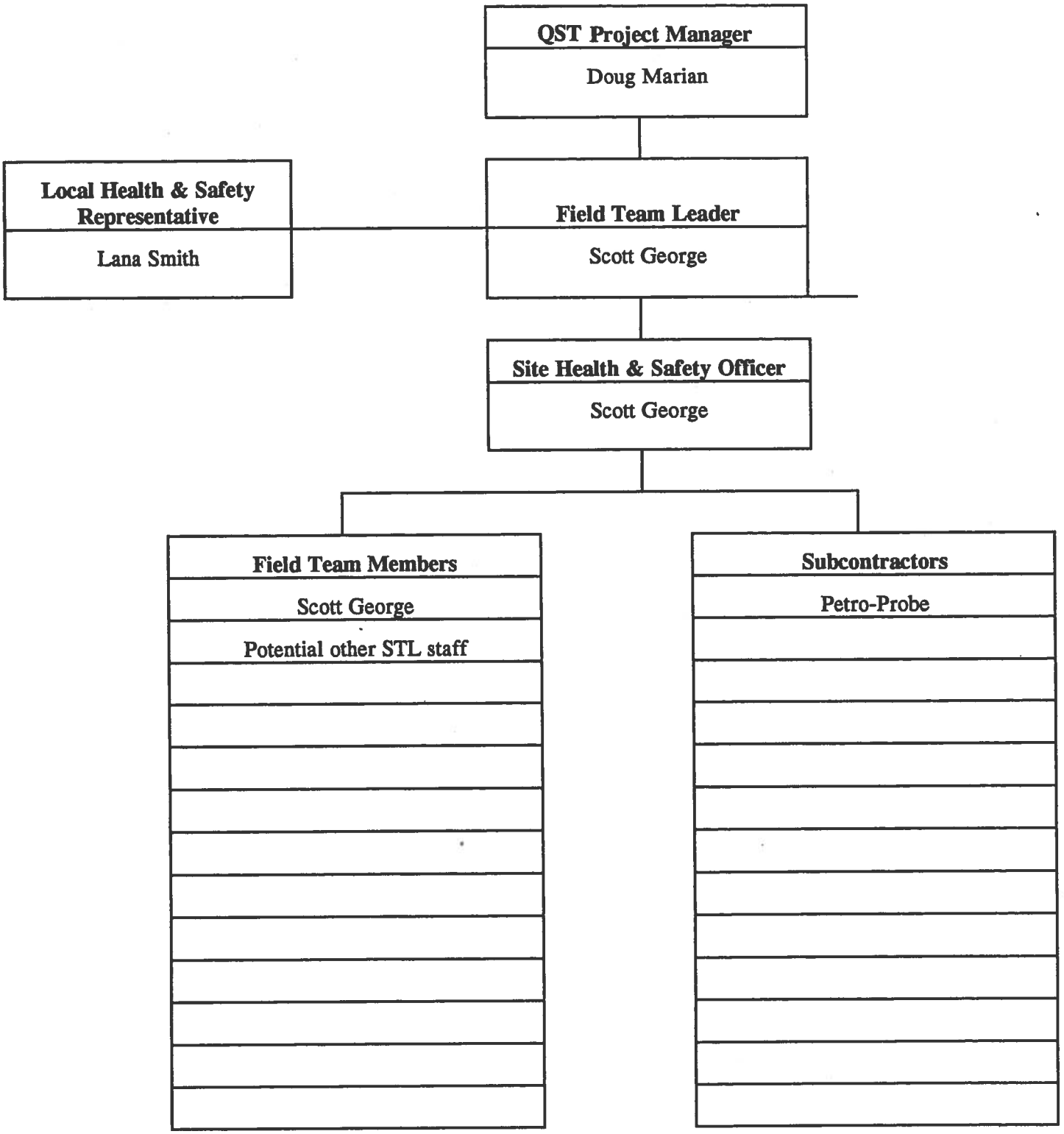
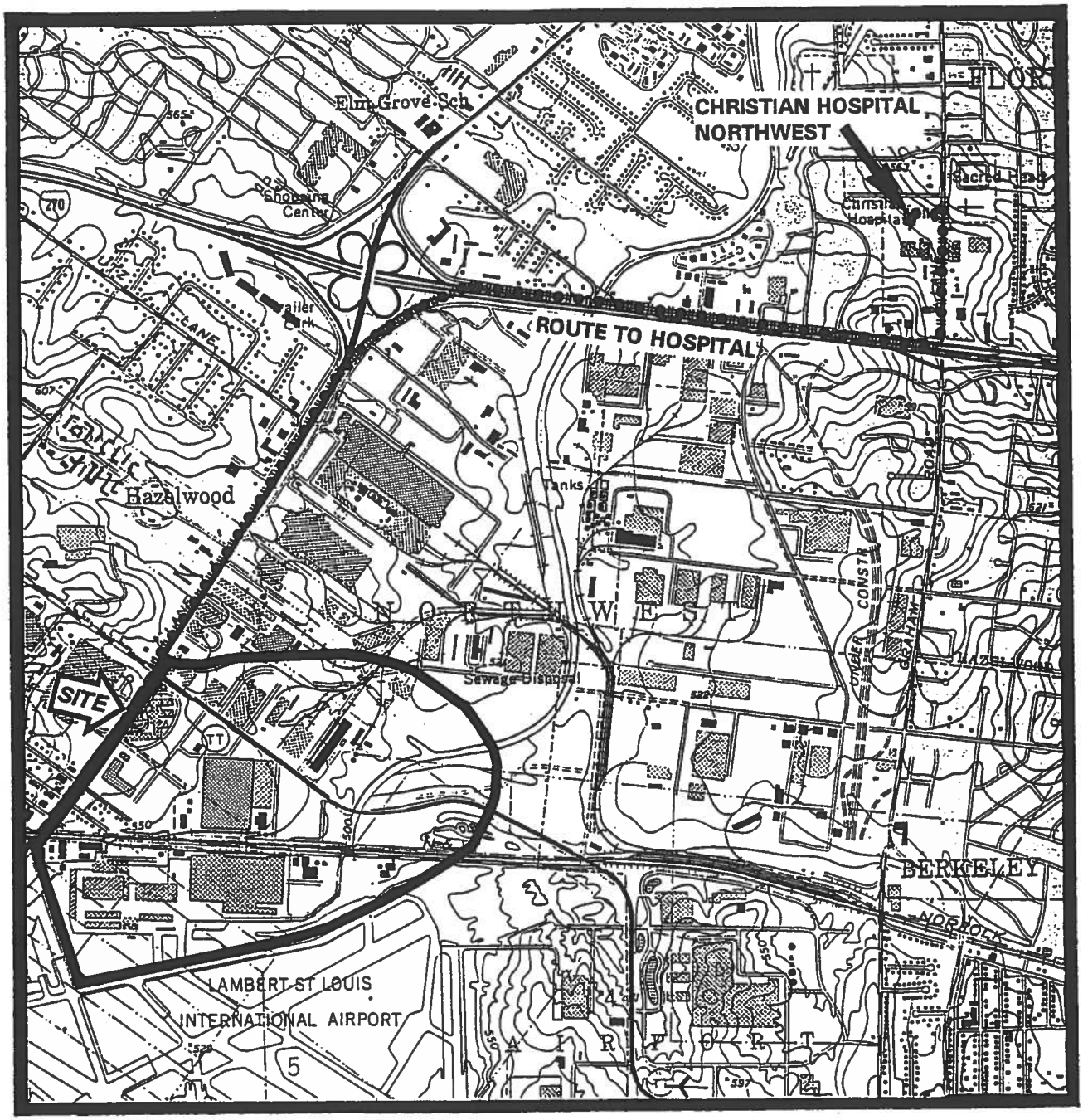


Figure 2-1 HASP ORGANIZATION CHART

Appendix



0 1000 2000

APPROXIMATE SCALE IN FEET

McDONNELL DOUGLAS

Figure 6-1
ROUTE TO MEDICAL FACILITY
(CHRISTIAN HOSPITAL
- NORTHWEST)

Appendix A

Daily Safety Meeting Checklist

QST ENVIRONMENTAL INC.

Daily Safety Meeting Checklist

Project: McDonnell Douglas Site: St. Louis, Missouri 63166-0516

Project Number: 5197042- Date:

To be reviewed on the first day of site activities and when new workers arrive on-site:

Site Health and Safety Officer: _____

Alternate for Health and Safety: _____

Location of On-site HASP: _____

Site Training Requirements: _____

Specific Medical Surveillance Requirements: _____

During the project, one or more of the agenda items could be selected for the required daily site training.

Date: ___ ___ ___ ___ ___

	Agenda	Check-off
1.	Planned work for this day (discuss)	☐ ☐ ☐ ☐ ☐
2.	Physical hazards and controls (discuss/review)	☐ ☐ ☐ ☐ ☐
3.	Chemical hazards and controls (discuss/review)	☐ ☐ ☐ ☐ ☐
4.	Biological hazards and controls (discuss/review)	☐ ☐ ☐ ☐ ☐
5.	Level of protection required (specify A, B, C, D) _____	☐ ☐ ☐ ☐ ☐
6.	Personal protective equipment required per the hazard assessment (specify type):	☐ ☐ ☐ ☐ ☐
	Respirator _____	
	Protective coveralls _____	
	Safety glasses/goggles _____	
	Hard hat ANSI approved _____	
	Foot protection Safety Boots _____	
	Inner gloves _____	
	Outer gloves _____	
	Hearing protection _____	
	Other _____	
7.	Review inspection, decontamination, and maintenance procedures and the limitations of the above stated PPE.	☐ ☐ ☐ ☐ ☐
8.	Decontamination procedure (discuss/review)	☐ ☐ ☐ ☐ ☐
9.	Exclusion zone established. Radius 15 ft (specify)	☐ ☐ ☐ ☐ ☐
10.	Site emergency response plan (discuss/review)	☐ ☐ ☐ ☐ ☐
11.	Signs and symptoms of overexposure to chemicals anticipated on-site	☐ ☐ ☐ ☐ ☐
12.	General health and safety rules	☐ ☐ ☐ ☐ ☐
13.	Specific health and safety requirements relating to site activities including: (discuss/review)	
	Drilling/boring	☐ ☐ ☐ ☐ ☐
	UST	☐ ☐ ☐ ☐ ☐
	Excavations	☐ ☐ ☐ ☐ ☐
	Heavy equipment	☐ ☐ ☐ ☐ ☐
	Confined space entry	☐ ☐ ☐ ☐ ☐
	Lockout/tagout	☐ ☐ ☐ ☐ ☐
	Working in temperature extremes	☐ ☐ ☐ ☐ ☐
14.	Other health and safety issues (discuss/note)	☐ ☐ ☐ ☐ ☐

QST ENVIRONMENTAL INC.

Daily Safety Meeting Checklist (cont.)

I have participated in the daily safety meeting discussing the topics indicated on the reverse and fully understand my responsibility for complying with all health and safety requirements. I have had the opportunity to have my questions on-site health and safety issues and procedures answered.

Employee (Name and Signature)	Employee Number	Date

Signature of Person Conducting Training ____________________ Date ____________

Appendix B

Log of Site-Specific Training

LOG OF SITE-SPECIFIC TRAINING

I acknowledge that I have received site-specific training for the project listed below on the date listed below which included the following topics:

Project _____ Project No. _____

Topics Covered: _____

_____

_____

_____

_____

I also acknowledge that I had the opportunity to have my questions on site-specific tasks answered.

Employee's Signature	Employee Number	Date

ESE

Appendix C

Material Safety Data Sheets

FOR S/P CAT# C4300 & .300-5

MALLINCKRODT

Material Safety Data Sheet

Mallinckrodt, Inc. Science Products Division, P.O. Box M Paris, KY 40361

Emergency Telephone Number: 314-982-5000

ACETONE

PRODUCT IDENTIFICATION:

Synonyms: Dimethylketone; 2-propanone

Formula CAS No.: 67-64-1

Molecular Weight: 58.08

Chemical Formula: CH_3COCH_3

Hazardous Ingredients: Acetone

PRECAUTIONARY MEASURES

DANGER! EXTREMELY FLAMMABLE. HARMFUL IF SWALLOWED OR INHALED.
CAUSES IRRITATION.

Keep away from heat, sparks and flame.
Avoid contact with eyes, skin and clothing.
Keep container closed.
Use with adequate ventilation.
Avoid breathing vapor.

EMERGENCY/FIRST AID

If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. In all cases call a physician.
SEE SECTION 5.

DOT Hazard Class: Flammable Liquid

SECTION 1 Physical Data

Appearance: Clear, colorless, volatile liquid.

Odor: Fragrant, mint-like

Solubility: Miscible in all proportions in water.

Boiling Point: 56.5°C (133.7°F)

Melting Point: -95°C (-139°F)

Specific Gravity: 0.8

Vapor Density (Air=1): 2.0

Vapor Pressure (mm Hg): 400 @ 39.5°C (103°F)

Evaporation Rate; (Butyl Acetate=1) ca. 7.7

SECTION 2 Fire and Explosion Information

Fire:
Flammable liquid!
Flash point:-18°C (0°F) closed cup
Autoignition temperature: 465°C (869°F)
Flammable limits in air, % by volume:
lel: 2.6 uel:12.8

Explosion:
Above flash point, vapor-air mixtures are explosive within flammable limits noted above.

Fire Extinguishing Media:
Water, dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Oxidizing materials, chloroform, alkalies, acids, potassium t-butoxide.

SECTION 4 Leak/Spill Disposal Information

Isolate or enclose the area of the leak or spill. Remove all sources of ignition. Clean-up personnel require protective clothing and respiratory protection from vapors. Contain and recover liquid for reclamation when possible. Larger spills and lot sizes can be collected as hazardous waste and atomized in a suitable RCRA approved combustion chamber, or absorbed with vermiculite, dry sand, earth or similar material for disposal as hazardous waste in a RCRA approved facility. Do not flush to sewer!

Reportable Quantity (RQ)(CWA/CERCLA) : 5000 lbs.

Ensure compliance with local, state and federal regulations.

AD

NFPA Ratings: Health: 1 Flammability: 3 Reactivity: 0

SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
Irritating to the nose, throat, and mucous membranes. May cause dizziness, dullness, and headache. Narcotic in high concentrations.

Ingestion:
May produce narcotic effects with other symptoms paralleling those from inhalation exposure.

Skin Contact:
Irritating due to defatting action on skin. May cause redness, pain, drying and cracking of the skin.

Eye Contact:
Vapors are irritating to the eyes. Splashes may cause severe irritation, with redness and pain.

Chronic Exposure:
Prolonged or repeated skin contact may produce severe irritation or dermatitis.

Aggrevation of Pre-existing Conditions:
Use of alcoholic beverages enhances toxic effects.

B. FIRST AID

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. Call physician immediately.

Skin Exposure:
Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye Exposure:
Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1986)

Oral rat LD50: 9750 mg/kg Skin rabbit LD50: 20 gm/kg Mutation references cited. Irritation eye rabbit 3.95 mg Severe Aquatic toxicity rating: TLm96: over 1000 ppm

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL):
750 ppm (TWA), 1000 ppm (STEL)

-ACGIH Threshold Limit Value (TLV):
750 ppm (TWA), 1000 ppm (STEL)

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommend Practices", most recent edition, for details.

Personal Respirators: (NIOSH Approved)
If the TLV is exceeded a full facepiece chemical cartridge respirator may be worn, in general, up to the maximum use concentration specified by the respirator supplier. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from oxidizing materials. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment.

MALLINCKRODT

Material Safety Data Sheet

Mallinckrodt, Inc. Science Products Division, P.O. Box M Paris, KY 40361

Emergency Telephone Number: 314-982-5000

Addendum to Material Safety Data Sheet

REGULATORY STATUS

This Addendum Must Not Be Detached from the MSDS

Identifies SARA 313 substance(s)

Any copying or redistribution of the MSDS must include a copy of this addendum

(Chem.Key: ACCET)

Product or Components of Product:

ACETONE (67-64-1)

Hazard Categories for SARA Section 311/312 Reporting

Acute	Chronic	Fire	Pressure	Reactive
X		X		

SARA EHS Sect. 302 RQ (lbs.)	SARA EHS Sect. 302 TPQ (lbs.)	SARA Section 313 Chemicals Name List	SARA Section 313 Chemicals Chemical Category	CERCLA Sec.103 RQ (lbs.)	RCRA Sec. 261.33
No	No	Yes	No	5000	U002

SARA Section 302 EHS RQ: Reportable Quantity of Extremely Hazardous Substance, listed at 40 CFR 355.

SARA Section 302 EHS TPQ: Threshold Planning Quantity of Extremely Hazardous Substance. An asterisk (*) following a Threshold Planning Quantity signifies that if the material is a solid and has a particle size equal to or larger than 100 micrometers, the Threshold Planning Quantity = 10,000 LBS.

SARA Section 313 Chemicals: Toxic Substances subject to annual release reporting requirements listed at 40 CFR 372.65.

CERCLA Sec. 103: Comprehensive Enviromental Response, Compensation and Liability Act (Superfund). Releases to air, land or water of these hazardous substances which exceed the Reportable Quantity (RQ) must be reported to the National Response Center, (800-424-8802); Listed at 40 CFR 302.4

RCRA: Resource Conservation and Reclamation Act. Commercial chemical product wastes designated as acute hazards and toxic under 40 CFR 261.33

Appendix D

Personal Exposure Monitoring Forms

QST ENVIRONMENTAL INC.

PROJECT EXPOSURE RECORD

Project:_____ Project No.:_____

Site Health & Safety Officer:_____

Date:_____ Temp.:_____ Weather:_____ Wind:_____ __

Meter:_____ Serial No.:_____

Calibrated: Before: Yes____ No____ After: Yes____ No____

Chemical Compounds:_____

Employees On-site:_____

Activity (i.e. soil boring, tank decon, etc.)	Time (Military)	Breathing Zone Reading (1)	Background Reading

Note: (1) Refer to HASP for upgrade specifications.

Signature:_____ Date:_____

Appendix E

Personal Protective Equipment Assessment

ATTACHMENT B
PPE ASSESSMENT

Date: _____

Type of operation or process (describe): _____

Employee(s) working in the area: _____

Engineering/administrative controls currently in use: _____

Eye/Face Protection:	Yes	No		Yes	No
Potential for flying objects?	☐	☐	Welding, cutting, torch work?	☐	☐
Potential for chemical splash hazard?	☐	☐	Laser?	☐	☐
Potential for dust?	☐	☐	Potential release of pressure from lines?	☐	☐
Potential for glare problems?	☐	☐			

Hearing Protection:
Sound level measured during peak operation: _____ dB(A)
8 hour TWA: _____ dB(A)

Foot Protection:	Yes	No	Comments
Potential for handling or carrying heavy objects?	☐	☐	_____
Potential for heavy objects to roll over foot?	☐	☐	_____
Potential to step on sharp objects?	☐	☐	_____

Hand Protection:	Yes	No	Comments
Potential for contact with liquid chemicals?	☐	☐	_____
Potential for contact with dry chemicals?	☐	☐	_____
Potential for work with vibrating equipment?	☐	☐	_____
Welding, cutting or torch work?	☐	☐	_____
Potential for cuts, abrasions, blisters, etc.?	☐	☐	_____

Skin & Body Protection:	Yes	No	Comments
Potential for contact with liquid chemicals?	☐	☐	_____
Potential for contact with dry chemicals?	☐	☐	_____
Potential for exposure to non-ionizing radiation?	☐	☐	_____

Respiratory Protection:	Yes	No	Comments
Are airborne levels of contaminants known?	☐	☐	_____
If known, do they exceed the PEL/STEL?	☐	☐	_____
When was monitoring performed? _____			

Head Protection:	Yes	No	Comments
Will construction activities be involved?	☐	☐	_____
Is there a potential for falling objects?	☐	☐	_____
Will employees be working below other workers?	☐	☐	_____

PPE REQUIRED

Eye/Face Protection: If required, specify type	Required	Not Required
Hearing Protection: If required, specify type	Required	Not Required
Foot Protection: If required, specify type	Required	Not Required
Hand Protection: If required, specify type	Required	Not Required
Skin & Body Protection: If required, specify type	Required	Not Required
Respiratory Protection: If required, specify type	Required	Not Required
Head Protection: If required, specify type	Required	Not Required

Appendix F

Subcontractor Coordination Checklist

QST ENVIRONMENTAL INC.

Subcontractor Coordination Checklist

Project:	McDonnell Douglas	Site:	St. Louis, Missouri
Project Number:	5197042	Site Location:	St. Louis, Missouri 63166-0516

I acknowledge that:

- I have provided subcontractors who will be performing field activities on this site with a copy of this HASP, and I have informed the subcontractors that OSHA 29 CFR 1910.120 applies to their field activities.

- I have verified that all subcontractors working on this project have been approved for use by the office/division under QST's Contractor Pre-Evaluation Program for the types of tasks they will be performing on-site.

- I have verified that all subcontractors have a method to comply with the client's drug surveillance procedure.

___ Applicable ___ Not Applicable

- I have informed all subcontractors that copies of their written HASP and any applicable Material Safety Data Sheets must be on-site at all times.

- For lockout/tagout operations: I have obtained information on the subcontractor's lockout/tagout program (from the subcontractor or LHSR) and have provided that information to the FIM/SHSO for use in field health and safety training.

___ Applicable ___ Not applicable

- I have verified that all subcontractors have Workers' Compensation Insurance (see your Contracts Specialist).

Project Manager's Signature _____ Date _____

Appendix G

McDonnell Douglas Vendor/Contractor Safety/Environmental Awareness Guide

Vendor/Contractor Safety/Environmental Awareness Guide

McDonnell Douglas Aerospace
(MDA)
St. Louis/St. Charles

McDonnell Douglas Aerospace
P.O. Box 516, Saint Louis, MO 63166-0516 (314) 232-0232 TELEX 44-857

MCDONNELL DOUGLAS

MCDONNELL DOUGLAS

50-1089

Telephone Numbers

For All Emergencies **Dial 9-1-1**

Additional Numbers for Routine Business

Occupational Safety & Environmental Health (OSEH)	**22123**
Environmental & Hazardous Materials Services (EHMS)	**23319**
Medical Services	**22453**
Guard Services	**22821**
Fire Services	**22285**

Note: The MDA Project Manager is a focal contact point, and as such must be kept fully informed of safety/environmental issues along with other project concerns.

Date Printed: January 1996

Preface

McDonnell Douglas Aerospace recognizes the importance of conducting its business in a socially responsible manner designed to: provide safe and healthful operations for its employees, its customers, and the public; ensure compliance with environmental requirements; and preserve company assets.

It is the responsibility of each Vendor/Contractor to ensure that each Vendor/Contractor employee conducts himself/herself safely, adheres to environmental requirements, and informs MDA when potentially unsafe conditions or environmental risks are observed.

The Vendor/Contractor must assure that this guide is issued to and reviewed by its employees. The receipt found in the back of this guide must be presented to the Security representative at the time of badging.

This booklet serves only as a guide. Nothing herein shall be construed to relieve the Vendor/Contractor of its responsibility to comply with federal, state, and local environmental, health and safety laws, rules, regulations, and MDA Contract requirements. Vendor/Contractor employees violating any of these rules or requirements are subject to removal from the site immediately.

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interfere with the protection of lives, equipment, and/or for other safety reasons.

2. Possession of weapons, explosives, cameras, radios, cassette player/recorder, electronic and other transmitting or receiving devices.

3. Violation of MDA Affirmative Action and Equal Opportunity Policies, which prohibit discrimination, retaliation or harassment (including slurs, banter, writings, pictures, etc.).

4. Violation of rules, procedures or warning signs pertaining to employee safety, fire prevention and environmental protection.

5. Failure to immediately report personal injuries sustained at the job site to MDA Project Manager.

6. Violation of MDA parking plan and traffic rules, including the violation of public laws while engaged in the work.

7. Unsatisfactory conduct (conduct detrimental to the interests of MDA or others).

8. Concealing or failing to report an error in the work.

9. Distracting attention of others from work.

10. Distributing literature (illustrated, written, printed or audio/video taped material of any description) in working areas during work time or engaging in commercial solicitations on MDA premises.

11. Carelessness resulting in poor workmanship, delay to work in process, damage or destruction to Company property or the property of others.

12. Unauthorized entry or presence on MDA premises or entry in restricted areas without permission.

13. Possessing, dispensing, selling, drinking, using or being under the influence of alcoholic beverages, narcotics, drugs (except when taken as directed by a competent medical professional), or similar harmful substances on MDA's premises at any time.

14. Permitting others to wear one's identification badge, wearing another person's badge, repeatedly forgetting identification badge, or failure to prominently display identification badge at all times.

required to keep unauthorized personnel out of the construction area and provide a warning at the job site of any potential hazard.

2. ***Overhead Work***
   a. Barriers must be provided by Contractor to block off areas where MDA personnel could likely walk beneath overhead work. Signs supplied by Contractor must be posted to indicate overhead work in progress.

   b. Where Contractor personnel must work beneath overhead work activities, Contractor shall designate a hard hat area.

3. ***Housekeeping***
   a. Vendor/Contractor employees shall keep work areas clean, neat, and orderly.

4. ***Ladders***
   a. Industrial stepladders shall not exceed 20 feet. Single ladders or individual rails for extension ladders shall not exceed 30 feet.

   b. Portable metal ladders may not be used for electrical work.

   c. Ladders shall not be used in front of doorways without posting the area and roping it off.

5. ***Hoisting***
   a. Hoisting of suspended loads over any

personnel is prohibited.

   b. MDA overhead hoists shall not be used by Contractor without permission from the MDA Project Manager.

   c. Overhead cranes must be de-energized whenever Contractors must work in close proximity of crane power busses. If work is in the travel path of cranes, but not close to power busses, the crane may be de-energized or isolated by rail stops.

6. ***Welding***
   a. All welding, cutting and open flame operations by the Contractor must be approved by MDA Fire Services prior to commencement. To obtain a Hot Work Permit, contact MDA Fire Services at 232-2285.

   b. Screens or barriers must be set where necessary to protect employees in surrounding areas from the welding flash.

7. ***Personal Protective Equipment (PPE) and Dress Code***
   a. All Contractor employee PPE will be appropriate for the job and supplied by the Contractor.

   b. Contractor personnel assigned to or entering eye protection areas must wear industrial

safety glasses with industrial safety lenses. Shop areas inside the yellow aisle lines at MDA are mandatory eye protection areas. For jobs where chemical splash hazards exist, goggles, full face shield, or a full face respirator must be worn.

c. Ordinary sunglasses or light-sensitive lenses are not allowed in eye protection areas unless authorized by the MDA Project Manager.

d. Ear plugs and/or muffs must be worn in designated areas, or in any location where noise exposure exceeds OSHA limits.

e. Vendor/Contractor employees assigned to work in the shop, manufacturing, or maintenance areas shall wear sturdy low-heeled (1-1/4 inches max) shoes with closed toe and heel.

f. Vendor/Contractor employees assigned to work in the shop, manufacturing, or maintenance areas shall wear ankle-length pants and tops that cover the body from the waist up and over the shoulders.

g. Contractor personnel directly involved with or exposed to moving machinery/tools shall not wear loose-fitting clothing (i.e. skirts, dresses, ties).

8. *Hazard Communication*

a. Each Contractor shall make available to MDA and other Contractors at the work site a copy of its Hazard Communication Program and list of hazardous chemicals, explosives, x-ray or laser equipment that is intended to be used at the site. Each Contractor must comply with all aspects of the OSHA Hazard Communication Standard.

b. Contractors shall supply MDA with copies of the Material Safety Data Sheets (MSDS) for any chemicals requiring an MSDS that they bring on site. The Occupational Safety and Environmental Health Dept. (OSEH) maintains a file of MSDSs for chemicals used at MDA-St. Louis. MSDSs are available for review by contacting the MDA Project Manager. MDA's written Hazard Communication Program and Hazardous Materials List are maintained by OSEH in Bldg. 4.

c. Containers of hazardous materials used at MDA are identified with a written label and hazard warning. Process tanks are identified with number or letter designations. Tank contents and hazard warnings are posted and correspond to the number/letter designator on the process tank.

d. Contractor may bring onto MDA premises only the minimum amount of hazardous

handled/stored properly on the job site.

c. **Non-Hazardous Solid Waste**

1. Disposal of non-hazardous solid wastes and demolition debris shall be the responsibility of the Contractor. Contractor-generated solid waste shall not be placed in any MDA container.

2. Non-hazardous waste generated by the Contractor shall not be left on site at the conclusion of a project.

4. Wastewater Discharges

a. Contractor shall not discharge any material to MDA storm sewer(s).

b. Contractor shall not use sanitary or industrial sewers for disposal without consent of MDA.

5. Potable Water

a. Contractor shall not engage in activities which would result in cross contamination or other degradation of the drinking/potable water supply.

b. Contractor shall use backflow prevention devices as necessary.

Section V

Fire Prevention

1. Good housekeeping is an important part of fire prevention. Vendor/Contractor shall keep work areas clean and dispose of smoking material only in approved containers. Trash will not be allowed to remain in any building overnight.

2. Contractor shall not store materials and equipment where they obstruct access to firefighting equipment, electrical control panels, ladders, safety showers, or emergency stop devices.

3. Contractor shall keep aisles, fire lanes, and exits clear at all times. Contractor shall become familiar with emergency exits in the area in which Contractor is working.

4. Contractor shall not tamper with fire extinguishers or alarms.

5. Only proper explosion rated or intrinsically safe electrical equipment may be used in areas such as flight hangars and paint booths where explosion proof electrical systems are required.

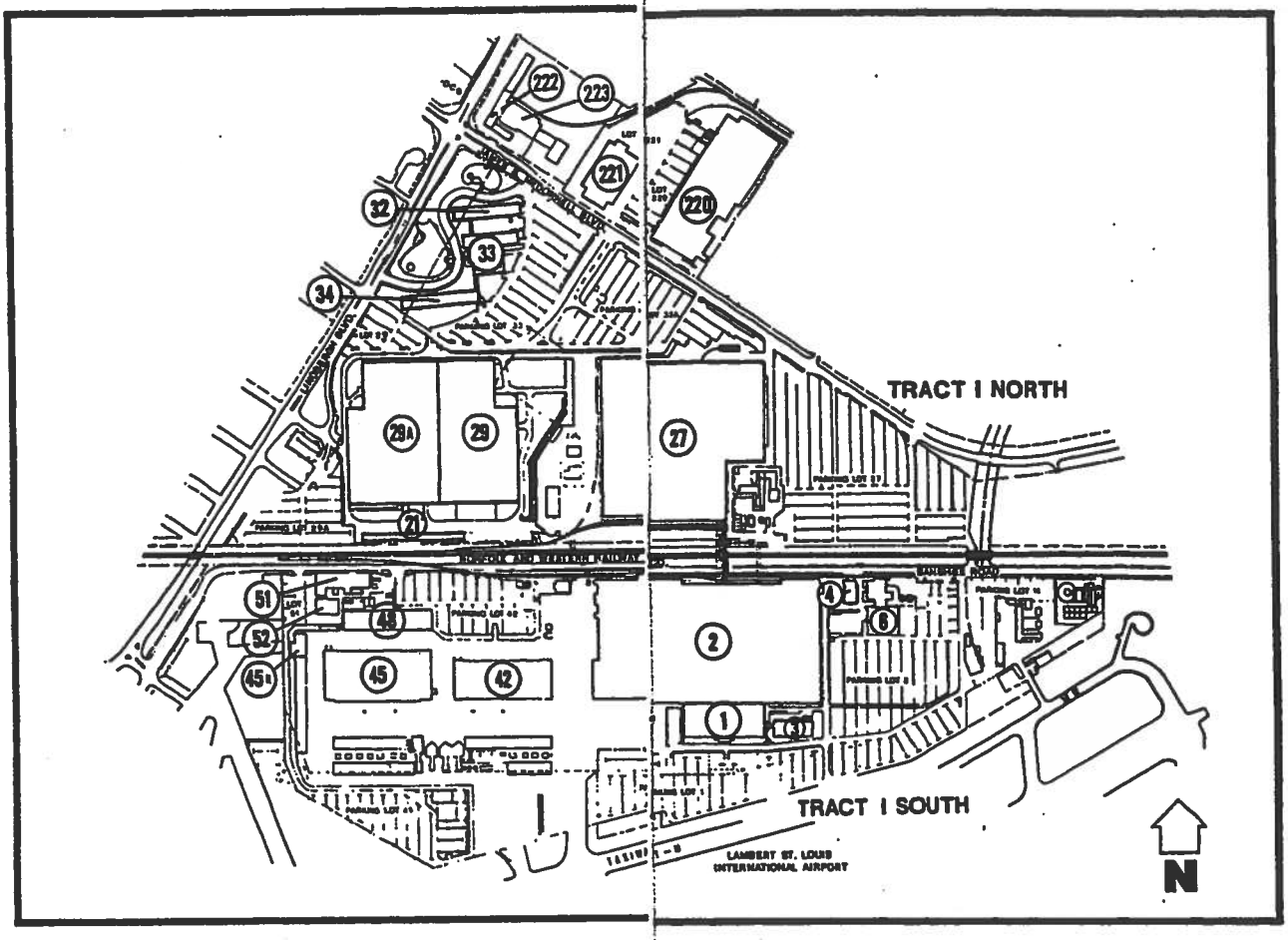
6. Sprinkler and Fire Main Impairments:

a. Sprinkler and Fire Main impairments require the approval of MDA Fire Services. 24 hour

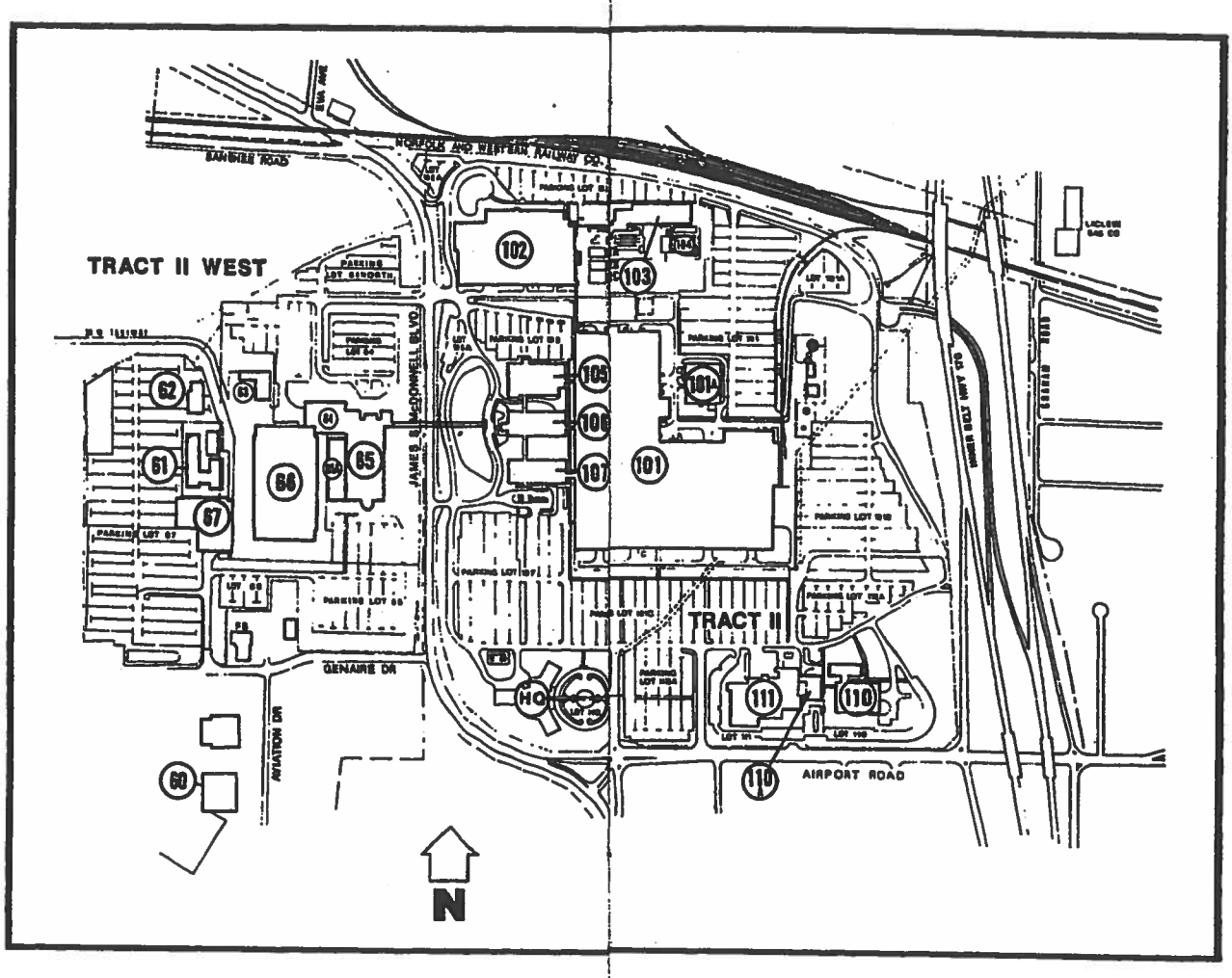
Section VII

Visitor Guide Maps

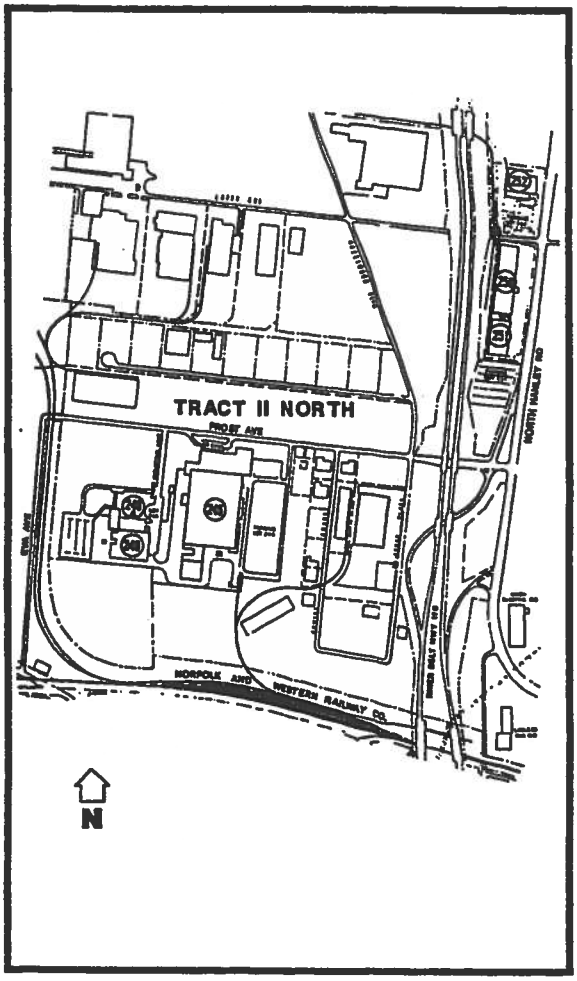
Tract I



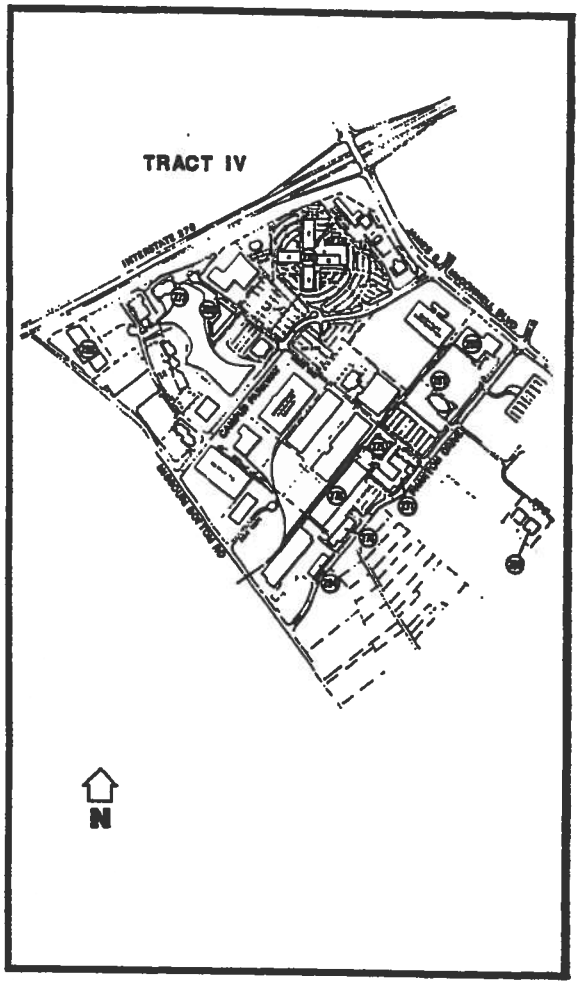
Tract II


TRACT II WEST
TRACT II
BARBER ROAD
GENAIRE DR
AIRPORT ROAD
OLD ARMY POST ROAD
102
103
105
106
107
101
101A
62
61
57
66
65
64
60
HO
111
110
N

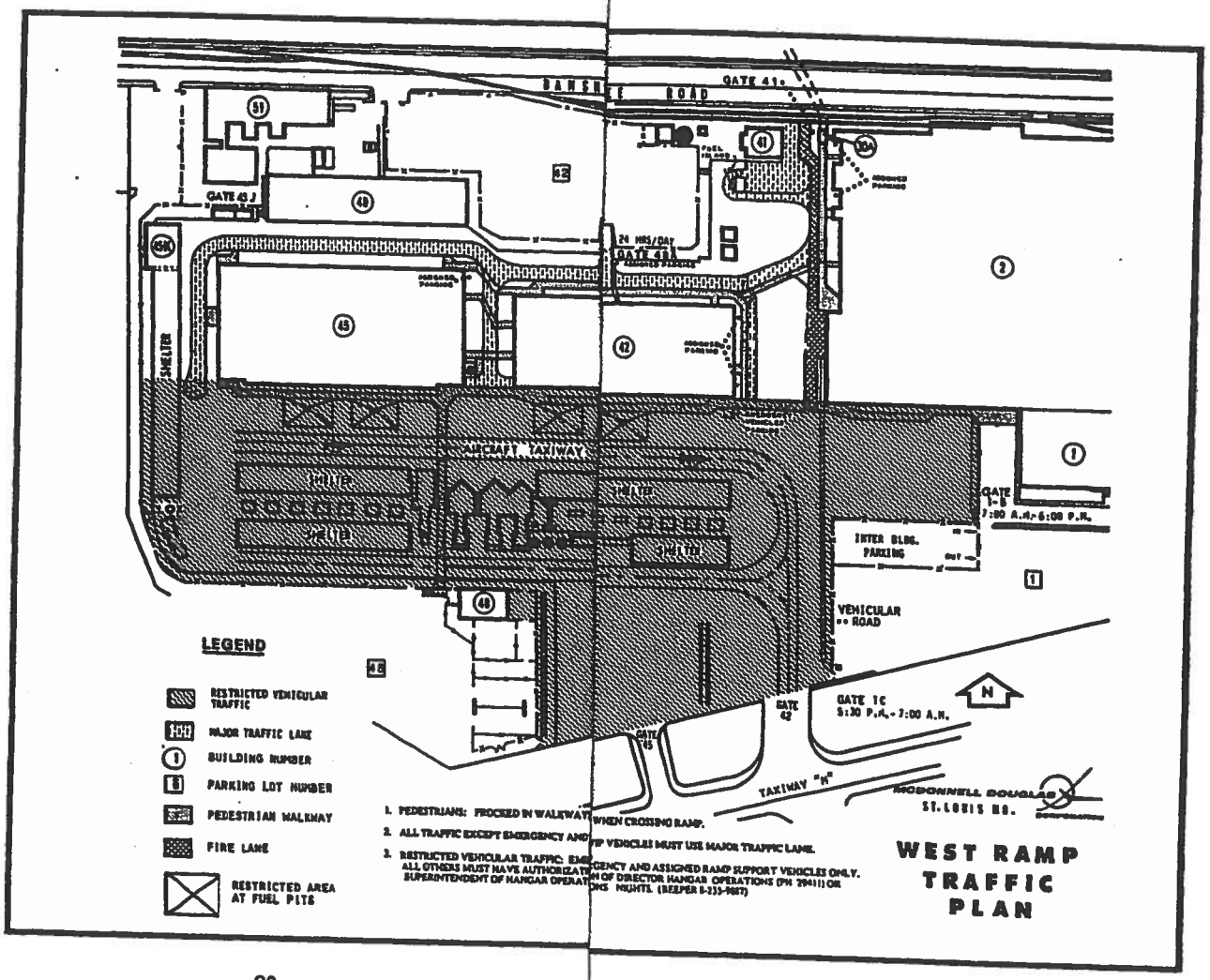
Tract II North



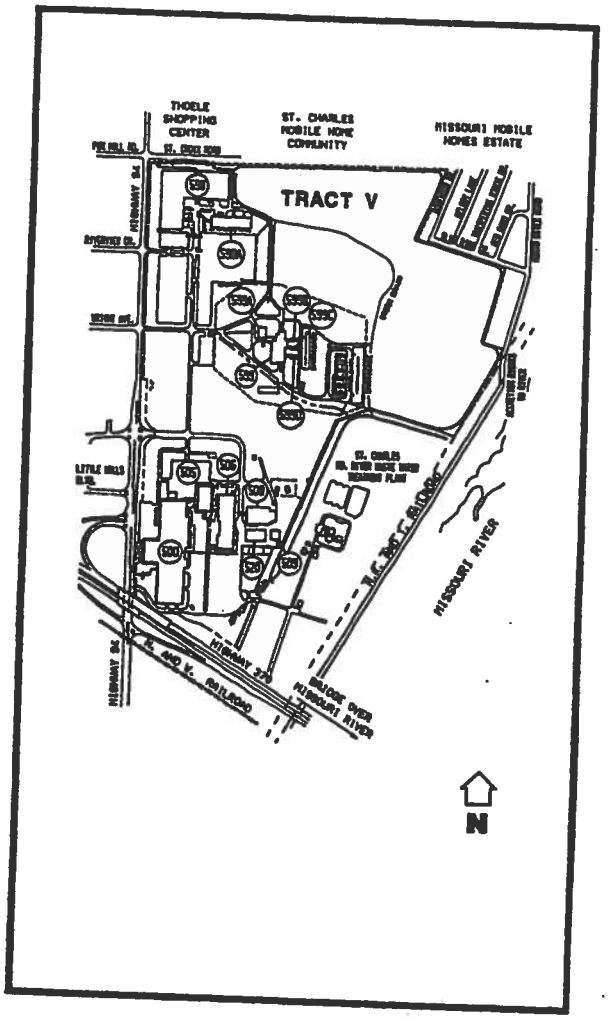
Tract IV



West Ramp Traffic Plan



Tract V



Section VIII

Vendor/Contractor Safety/ Environmental Awareness Guide

Complete, tear out and give to Security Representative for mailing.

Receipt

I have received and read the MDA Vendor/Contractor Safety/Environmental Awareness Guide.

Name (Print)_____

Signed_____

Date _____

Company_____

Project/Bldg_____

NOTES:

NOTES:

QST ENVIRONMENTAL INC.

Appendix H

Report of Occupational Accident, Injury or Illness

Environmental Science & Engineering, Inc.

A CH2MHILL Company

REPORT OF OCCUPATIONAL ACCIDENT, INJURY, OR ILLNESS

OFFICE & DEPARTMENT | DEPT. NO. | CENTER NO. | DATE OF REPORT

INITIAL REPORT

Last Name | First Name | Initial | Home Address (Street, City, State, Zip Code)

Sex | Employee No. | Social Security No. | Birth Date | Occupation(Job Title)

Date of Accident | Time of Accident ☐A.M. ☐P.M. | Exact Location of Accident | Did Accident Occur On ESE Property? ☐YES ☐NO

Employee's Home Office & Dept. No.

Result of Accident (Check All That Apply): ☐Near Miss ☐Injury ☐Illness

Project No. | Supervisor Name | Project Manager Name

What was employee doing at time of accident? (*Be specific. Include information on tools, equipment, materials in use and what employee was doing with them.)**

How did the accident occur?*

INJURY/ILLNESS INFORMATION

Type of Injury or Illness. | Part(s) of Body Affected (*Be Specific!*)

Object or Substance Responsible for Injury/Illness | Date of Injury or Initial Diagnosis of Illness

Name and Address of Treating Physician | Date Treated | Did Employee Die? ☐YES** ☐NO | Was Employee Admitted to Hospital? ☐YES** ☐NO

Treatment Received *(Be Specific!)*

Name and Address of Hospital | Date Treated

Treatment Received *(Be Specific!)*

Reported By | Title | Phone No.

*Attach Additional Sheets as Necessary

Please print clearly or type. | **Notify Corporate Health & Safety of Death or Hospital Admission Immediately!

8901 North Industrial Road Peoria, IL 61615 Phone (309) 692-4422 (800) 234-1239 Fax (309) 692-9364

ANALYSIS RESULTS

Detailed description of the accident. State clearly how it happened. Attach separate sheet and photographs/diagrams as appropriate.

Who Was in Charge of Work? | Was He/She Present? ☐YES ☐NO | What Instructions Were Given?

Witnesses* | Years Employee Has with ESE_____ | Years on Present Job_____ | Amount of Experience with Task Being Performed_____

Proper Protective Tools & Equipment in Use? ☐YES ☐NO | If Not, Why Not?*

What Hazardous Condition(s) Contributed to the Accident? Explain Each.* (See Suggestions Below)

What Unsafe Act(s) Caused/Contributed to the Accident? Explain Each.* (See Suggestions Below)

Involved Employee's Recommendation(s) To Prevent a Similar Occurrence.*

What Action(s) Will Be Taken To Prevent a Similar Occurrence? Be Specific.*

Discussed With Employee By | Date | Involved Employee's Immediate Supervisor's Signature

Report Approved By

Employee Comments*

Employee Signature | Date

HAZARDOUS CONDITIONS
Congested area/-
insufficient workspace
Defective apparel
Defective equipment
Environmental factor
Improper apparel
Improper design
Improper equipment
Improper illumination
Improper ventilation
Improperly guarded
Inclement weather
Lack of proper tools/equipment
Obscured vision
Poor housekeeping
Slick surface
Special task assignment
No hazardous condition

UNSAFE ACTS
Disregard of instructions
Disregard of safety rules
Due to vehicular accident
Failure to use/improper use of protective equipment
Horseplay
Improper lifting method
Improper positioning of self
Improper operating method
Improper use of hands or body parts
Improper use of tools/equipment
Inattention
Inexperience
Lack of communication
Lack of knowledge/skills
Lack of proper equipment/tools
Overestimation of personal capability
Poor judgement
Unsafe loading, pulling or mixing
Unsafe rigging
Unsafe speed
Using defective equipment
Working on moving equipment
No unsafe act

*Attach Additional Sheets as Necessary

Please print clearly or type.

**Notify Corporate Health & Safety of Death or Hospital Admission Immediately!